



US007230232B2

(12) **United States Patent**  
**Marriott**

(10) **Patent No.:** **US 7,230,232 B2**  
(45) **Date of Patent:** **Jun. 12, 2007**

(54) **MEANS FOR REMOVING UNWANTED IONS FROM AN ION TRANSPORT SYSTEM AND MASS SPECTROMETER**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **11/299,250**

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(22) Filed: **Dec. 9, 2005**

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(65) **Prior Publication Data**

US 2006/0151690 A1 Jul. 13, 2006

US 2007/0096022 A2 May 3, 2007

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**Related U.S. Application Data**

(63) Continuation of application No. 09/787,358, filed as application No. PCT/GB99/03076 on Sep. 16, 1999.

(30) **Foreign Application Priority Data**

Sep. 16, 1998 (GB) ..... 9820210.4

(51) **Int. Cl.**

**H01J 49/00** (2006.01)

**B01D 59/44** (2006.01)

(52) **U.S. Cl.** ..... **250/281; 250/282; 250/288; 250/423 R**

(58) **Field of Classification Search** ..... None  
See application file for complete search history.

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(57) **ABSTRACT**

The present invention relates to inductively coupled plasma mass spectrometry (ICPMS) in which a collision cell is employed to selectively remove unwanted artefact ions from an ion beam by causing them to interact with a reagent gas. The present invention provides a first evacuated chamber (6) at high vacuum located between an expansion chamber (3) and a second evacuated chamber (20) containing the collision cell (24). The first evacuated chamber (6) includes a first ion optical device (17). The collision cell (24) contains a second ion optical device (25). The provision of the first evacuated chamber (6) reduces the gas load on the collision cell (24), by minimising the residual pressure within the collision cell (24) that is attributable to the gas load from the plasma source (1). This serves to minimise the formation, or re-formation, of unwanted artefact ions in the collision cell (24).

**34 Claims, 2 Drawing Sheets**

